

LISTING OF THE CLAIMS

1-31. (Canceled)

1 32. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior
2 portion and a posterior portion, comprising:
3 a first endplate having an upper surface and a lower surface;
4 a first projection extending from said lower surface of said first endplate
5 terminating in a first distal end;
6 a second endplate having an upper surface and a lower surface;
7 a second projection extending from said upper surface of said second endplate and
8 substantially aligned with said first projection, said second projection
9 terminating at a second distal end to form a gap having a predetermined
10 distance between said first distal end and said second distal end; and
11 a visco-elastic cushion interposed between said first and second endplates further
12 comprising a cavity for receiving said first and second projections;
13 wherein contact between said first distal end of said first projection and said
14 second distal end of said second projection limits said first endplate and said
15 second endplate from moving relatively closer to one another.

33. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first projection of said first endplate extends a distance of approximately 1 to approximately 3 millimeters from said lower surface of said first endplate.

34. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first projection of said first endplate is substantially cylindrically shaped.

35. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first distal end has a radius of approximately 2 millimeters to approximately 15 millimeters.

36. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said second projection of said second endplate extends a distance of approximately 3 millimeters to approximately 6 millimeters from said upper surface of said second endplate to said second distal end.
37. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said gap between said first distal end and said second distal end is approximately 1 millimeters to approximately 2 millimeters.
38. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said upper surface of said first endplate and said lower surface of said second endplate further comprise appurtenances that aid in securing the prosthesis to adjacent vertebrae.
39. (Original) The artificial intervertebral disc prosthesis of claim 32, further comprising a force or pressure transducer located within said prosthesis for allowing the measurement and transmittal of information about loads experienced by the prosthesis.
40. (Currently Amended) The artificial intervertebral disc prosthesis of claim 39, wherein said second projection of said second endplate houses at least a portion of a package of signal conditioning and amplification electronics that is connected to said force or pressure ~~transducer~~ ~~transducers~~ placed within said second projection and at other peripheral locations around said second endplate.
41. (Currently Amended) The artificial intervertebral disc prosthesis of claim 39, wherein said second projection of said second endplate houses electronics connected to said force or pressure ~~transducer~~ ~~transducers~~ placed within said second projection and at other peripheral locations around said second endplate.

42. (Original) The artificial intervertebral disc prosthesis of claim 39, wherein said second endplate further comprises a flex circuit including a load sensor embedded onto said upper surface of said second endplate.
43. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first endplate and said second endplate comprise a biocompatible material suitable for implantation.
44. (Original) The artificial intervertebral disc prosthesis of claim 43 wherein said first endplate and said second endplate comprise materials selected from the group consisting of stainless steel, stainless steel alloys, titanium, titanium alloys, cobalt chromium molybdenum alloys, and composite materials.
45. (Original) The artificial intervertebral disc prosthesis of claim 44 wherein said material is an alloy comprising approximately 66 percent cobalt, approximately 28 percent chromium, and approximately 6 percent molybdenum, by weight.
46. (Currently Amended) The artificial intervertebral disc prosthesis of claim 32, wherein said first endplate and said second endplate each comprise a posterior portion;
wherein said posterior portion of each of said first and second endplates further comprises a concavity that defines posterior lobes projecting from said posterior portions of each of said first and second endplates.
47. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein each of said first and second endplates have an external surface therearound defining a generally "D" shape.
- 48-111. (Canceled)

1 112. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior
2 portion and a posterior portion, comprising:
3 a first endplate having an upper surface and a lower surface;
4 a first projection extending from said lower surface of said first endplate
5 terminating in a first distal end;
6 a second endplate having an upper surface and a lower surface;
7 a second projection extending from said upper surface of said second endplate and
8 substantially aligned with said first projection, said second projection
9 terminating at a second distal end to form a gap having a predetermined
10 distance between said first distal end and said second distal end; and
11 a polymeric cushion interposed between said first upper and second lower
12 endplates further comprising a cavity for receiving said first and second
13 projections;
14 wherein contact between said first distal end of said first projection and said
15 second distal end of said second projection limits said first endplate and said
16 second endplate from moving relatively closer to one another.

113 – 114. (canceled)

115. (New) The artificial intervertebral disc prosthesis of claim 32, wherein said first
distal end of said first projection and said second distal end of said second
projection are substantially planar.

116. (new) The artificial intervertebral disc prosthesis of claim 32, wherein contact
between said first distal end of said first projection and said second distal end
of said second projection permits at least some motion in a direction
perpendicular to a direction that brings said first endplate and said second
endplate closer to each other.

117. (New) The artificial intervertebral disc prosthesis of claim 112, wherein said first distal of said first projection and said second distal end of said second projection are substantially planar.
118. (New) The artificial intervertebral disc prosthesis of claim 112, wherein contact between said first distal end of said first projection and said second distal end of said second projection permits at least some motion in a direction perpendicular to a direction that brings said first endplate and said second endplate closer to each other.

- 1 119. (New) An artificial intervertebral disc prosthesis having an anterior portion and a
2 posterior portion, comprising:
3 a first endplate having an upper surface and a lower surface;
4 a second endplate having an upper surface and a lower surface;
5 a projection extending from said upper surface of said second endplate toward
6 said first endplate, said projection terminating at a distal end to form a gap
7 having a predetermined distance between said distal end and said first
8 endplate; and
9 a visco-elastic cushion interposed between said first and second endplates having
10 a cavity for receiving said projection;
11 wherein said distal end of said projection is substantially planar.
120. (New) The artificial intervertebral disc prosthesis of claim 119, wherein said
projection of said second endplate extends a distance of approximately 3
millimeters to approximately 6 millimeters from said upper surface of said
second endplate to said distal end.
121. (New) The artificial intervertebral disc prosthesis of claim 119, wherein said gap
between said distal end and said first endplate is approximately 1 millimeters
to approximately 2 millimeters.
122. (New) The artificial intervertebral disc prosthesis of claim 119, wherein said upper
surface of said first endplate and said lower surface of said second endplate
further comprise appurtenances that aid in securing the prosthesis to adjacent
vertebrae.
123. (New) The artificial intervertebral disc prosthesis of claim 119, further comprising
a force or pressure transducer located within said prosthesis for allowing the
measurement and transmittal of information about loads experienced by the
prosthesis.

124. (New) The artificial intervertebral disc prosthesis of claim 123, wherein said projection of said second endplate houses at least a portion of a package of signal conditioning and amplification electronics that is connected to said force or pressure transducer placed within said projection and at other peripheral locations around said second endplate.
125. (New) The artificial intervertebral disc prosthesis of claim 123, wherein said projection of said second endplate houses electronics connected to said force or pressure transducer placed within said projection and at other peripheral locations around said second endplate.
126. (New) The artificial intervertebral disc prosthesis of claim 123, wherein said second endplate further comprises a flex circuit including a load sensor embedded onto said upper surface of said second endplate.
127. (New) The artificial intervertebral disc prosthesis of claim 119, wherein said first endplate and said second endplate comprise a biocompatible material suitable for implantation.
128. (New) The artificial intervertebral disc prosthesis of claim 127, wherein said first endplate and said second endplate comprise materials selected from the group consisting of stainless steel, stainless steel alloys, titanium, titanium alloys, cobalt chromium molybdenum alloys, and composite materials.
129. (New) The artificial intervertebral disc prosthesis of claim 127, wherein said material is an alloy comprising approximately 66 percent cobalt, approximately 28 percent chromium, and approximately 6 percent molybdenum, by weight.
130. (New) The artificial intervertebral disc prosthesis of claim 119, wherein said first endplate and said second endplate each comprise a posterior portion;

wherein said posterior portion of each of said first and second endplates further comprises a concavity that defines posterior lobes projecting from said posterior portions of each of said first and second endplates.

131. (New) The artificial intervertebral disc prosthesis of claim 119, wherein each of said first and second endplates have an external surface therearound defining a generally "D" shape.
132. (New) The artificial intervertebral disc prosthesis of claim 119, wherein contact between said projection and said first endplate stops compressive motion but allows at least some amount of shear motion.

1 133. (New) An artificial intervertebral disc prosthesis having an anterior portion and a
2 posterior portion, comprising:
3 a first endplate having an upper surface and a lower surface;
4 a second endplate having an upper surface and a lower surface;
5 a projection extending from said upper surface of said second endplate toward
6 said first endplate, said projection terminating at a distal end to form a gap
7 having a predetermined distance between said distal end and said first
8 endplate; and
9 a polymeric cushion interposed between said first and second endplates having a
10 cavity for receiving said projection;
11 wherein said distal end of said projection is substantially planar.

1 134. (New) An artificial intervertebral disc prosthesis having an anterior portion and a
2 posterior portion, comprising:
3 a first endplate having an upper surface and a lower surface;
4 a second endplate having an upper surface and a lower surface;
5 a projection extending from said upper surface of said second endplate toward
6 said first endplate, said projection terminating at a distal end to form a gap
7 having a predetermined distance between said distal end and said first
8 endplate; and
9 a visco-elastic cushion interposed between said first and second endplates having
10 a cavity for receiving said projection;
11 wherein contact between said distal end of said projection and said first endplate
12 permits at least some motion in a direction perpendicular to a direction that
13 brings said first endplate and said second endplate closer to each other.

1 135. (New) An artificial intervertebral disc prosthesis having an anterior portion and a
2 posterior portion, comprising:
3 a first endplate having an upper surface and a lower surface;
4 a second endplate having an upper surface and a lower surface;
5 a projection extending from said upper surface of said second endplate toward
6 said first endplate, said projection terminating at a distal end to form a gap
7 having a predetermined distance between said distal end and said first
8 endplate; and
9 a polymeric cushion interposed between said first and second endplates having a
10 cavity for receiving said projection;
11 wherein contact between said distal end of said projection and said first endplate
12 permits at least some motion in a direction perpendicular to a direction that
13 brings said first endplate and said second endplate closer to each other.